DOCUMENT NUMBER: SOP319

TITLE: Preparing Cargo for Military Transport.

PURPOSE:

To ensure cargo is prepared safely and adheres to the Air Force Regulations found in AMCI 24-101 V11 Section C, for the C-130 TO 1C-130A-9.

BACKGROUND:

The US Air National Guard (USANG) cargo department known as a Small Air Terminal (SAT) is represented in Kangerlussuaq by a rotating detail of individuals commonly referred to as Aerial Port.

They refer to the details lead as the ATOC, which means Air Terminal Operations Center. They usually work in two shifts, morning and afternoon. It is best to try to always confer with the ATOC and not just the shift lead for pallet build help, pallet spaces, and priorities. The leads typically do not have the “big picture” and in many cases are not authorized to deviate from initial plans.

DETAILS:

1. **Identifying, Prepping, And Grouping Cargo By Location**

    a. Group cargo by destination this can be done by destination sticker or Transportation Control Number (TCN) label.

    b. Check that all hazardous freight is labeled. Check the hazardous materials segregation table for compatibility.

    c. Any pieces over ten feet or significantly off balance should have their Center of Balance (C/B) marked. This point can be ascertained by putting long cargo on a pivot point and seeing where it balances at. Equilaterally proportioned cargo can be marked in its center.

2. **Check Pallet for Air Worthiness and Pallet Placement**

    a. Check the top and bottom of HCU-6/E Air Force Pallet. Ensure that the pallet is not warped or bowed. Check that the top or bottom surface is free from punctures or delamination. Check the tie down rings to make sure that they in good working condition, not bent or stretched and that no rings are missing.

b. For pallet trains check couplers to make sure central lock spins and side d-ring nubs are free of burrs so that d-rings will hook on and off.

c. Place single pallets on top of three sticks of 4" x 4" dunnage with ample space on all sides to work on pallet.

d. Place pallets for pallet trains on sled or K loader. Hook them together with pallet couplers.

3. Place Cargo on Pallet

a. Build cargo on the pallet according to the guidelines set forth in the AMCI 24-101V11 Section C, and the -9 for the particular airframe conveying the load.

b. Keep the center of gravity for the pallet in the central 24" X 28" area of the pallet. If an unusual load prohibits creating a balanced load then a placard should be placed on the rear of the finished pallet noting where the majority of weight is i.e. left side/ right side heavy. Do not make a forward heavy pallet. This creates a tipping hazard and can injure personnel and damage cargo.

c. Carefully consider over hang when putting cargo on pallets. Side over hang must be negotiated with the current rotation's ATOC. Excessive front or rear overhang eliminates pallets positions available. Rear overhang can make a pallet be unable to be lifted by forklifts.

d. Heavier and crated cargo should be on the bottom with the lighter and fragile items on top of the pallet.

e. Place hazardous materials on pallet so that labels are facing the outside.

f. If building for a C-130 leave a six inch walkway on the left side of the pallets built for cabin placement. When building for a ramp pallet position leave a 20" x 20" cutout on the front right side of the pallet. This is done to leave room for the fold down toilet. Exceptions and work-around are found in AMC1 24-101V11 Pg 34 and 35. When attempting to do this contact the currents rotations ATOC for clearance to proceed.

g. Make sure that cargo is tightly packed and that gaps are not in between pieces. If gaps are unavoidable use filler items such as honeycomb board or foam to fill the gaps. If not done, cargo can shift in transit and the tie down equipment (TDE) become loose.

h. Cargo having a destination of Summit Station should be less than four thousand pounds. If cargo exceeds this amount it should be communicated to Summit so they can arrange to use the offload sled. If they have a pallet train already on the sled at Summit this weight restriction must be adhered to.

i. Cargo with a destination of sites without cargo handling equipment must be built to cargo drifting standards. 96" tall for single pallets. 80" tall for pallet trains. There can be no forward overhang. Aft over hang must be raised. The formula for this is; number of inches of overhang times 0.2679. Extremely fragile cargo must be taken into consideration and the risks associated with combat offloads communicated to researchers.

j. When building pallet trains place cargo and record where the C/B of each piece is in relation to the front of edge of the pallet. Pallet trains should be built aft heavy to aid in the landing and taking off of aircraft on snowy surfaces.

4. Restrain Cargo

a. If pallet is going to New York or will be sitting in Kanger for an extended period of time outside and has Keep Dry items on it a pallet bag should be placed on the pallet. This is not easily done on pallet trains so limit Keep Dry items or try to arrange to place in the Royal Danish Air Force (RDAF) hanger prior to shipment.

b. Calculate the amount and/ or type of TDE to be used based on the restraint rating of the various types, the weight of the cargo to be restrained. Do not mix cloth and metal TDE restraint systems i.e. straps and chains.

c. Check to make sure TDE is in good condition. Nets should have working hooks; have no tears or punctures and no stressed or bent rings. Straps should have no tears beyond the edge stitching line. Chains should have no stressed links. No chains embossed with W-Italy on it, can be used and must be taken out of stock. Devices cannot be bent or broken. Test devices to make sure that they tighten and loosen.

d. Restrain cargo according to the guidelines set forth in the AMCI 24- 101V11 Section C, and the -9 for the particular airframe conveying the load.

e. Nets sets are good up to 10,000 pounds, chains are rated at 10,000 but reduced to 7,500 pounds due to ring strength unless used as a chain bridle or gate then it is rated to 15,000 pounds, Straps are rated to 5,000 pounds, top nets only are rated to 2,500 pounds.

f. In the case of straps and chains, full restraint rating can only be achieved when at zero or at ninety degrees to a pallet surface, in effect a straight line. When the angle changes it reduces the effectiveness of the restraint applied. The actual restraint provided can be calculated by first measuring the Actual Length (AL) and the Effective Length (EL). To find the AL; measure from where the TDE is hooked to the pallet to where the chain hooks to the cargo, or in the case of chain bridles and gates to where the chain changes angle. The EL is a measurement from where the TDE is hooked to the pallet to a point directly below the horizontal plane of the tie down fitting. Once you have the AL and the EL. You take the EL and divide it by the AL then multiply it by the restraint rating of the TDE used. For example when using chains it would look like EL/AL x 7500 pounds. The formula, examples and a diagram can be found in TO-1C-130A-9 Chapter 4 Section II Subsection 23.

g. If possible when using nets, use two sides and a top net. If cargo will not allow the use of a top net then use seven straps. Four should run forward and aft and three running longitudinally. The straps should be attached to the highest rings available.

h. You can use net sets on two and three pallet trains but not on four and five pallet trains.

i. Make every attempt to restrain cargo symmetrically. When a tie down strap or chain is placed around a cargo unit, and the tie down attachment points are to two symmetrical tie down fittings, the value of the strap or chain is doubled provided the capacity of the fittings is equal to or greater than the capacity of the strap or chain.

j. If a single cargo pallet is not tall enough to use side nets, a top net can be used by itself. When evaluating if a top net only can be used the key is below 45" and 2500#. If it is above those restrictions then supplemental restraint must be used.

k. When building trains, if the cargo consists of a few large pieces restraining is best done with chains or straps. Do not place straps on rough or sharp corners that can tear or cut the strap. Do not use chains on easily crushable items. If attaching straps or chains directly to the piece of cargo make sure the attachment point is strong and secure. If the train consists of many smaller pieces and is T-2 or T-3 sized then nets work best. A T-2 will require three nets and T-3 will require four nets.

l. When complete cargo restraints should be snug. Do not over tighten chains or straps as they can severally pull up on the edges and warp pallets.

5. Weigh and Measure Pallet.

a. Measure pallet height in inches, rounding up and record it. Height is measured from the surface of the pallet.

b. Measure overhang on every side of the pallet in inches, rounding up and record it. Side over hang is taken from the edge of the working surface and is noted as LTOH (Left Side Overhang) and RTOH (Right Side Overhang). Forward and rear overhang is taken from the edge of the indent tabs and is noted as FOH (Forward Overhang) and ROH (Rear Overhang).

c. Weigh the pallet. Lift the pallet with either the forklift or the indoor motorized AF pallet jack. Place on either the twin beam scales or if unavailable use portable hand scales. When using the hand scales place them under the pallet on dunnage. The dunnage should be close to the edge of the pallet, so that when resting on the scales the dials can still be read. Once the pallet is in the down position and the forks are not touching the pallet in any way. Read both scales and add the numbers together. Record this number. Remove from scales and place on three sticks of dunnage.

6. Record Environmental and Hazards present.

a. Record all hazardous item codes present on pallet.

b. Record all environmental restrictions on pallet i.e. Do Not Freeze, Keep Dry, Keep Frozen, Do Not Drop.

7. Record information in the pallet tracker

a. Go to the Google Docs link and click on the current year pallet tracker link.
b. Pick the next available pallet number for the destination the cargo is going to.
c. Fill out each entry field in the document. Haz and environmental codes can be put into the description field.
d. Save document.

8. **Create PID and apply to pallet.**
   a. Go to \\Cpssonde\common\Cargo\PID
   b. Fill out all fields of the Pallet Identification (PID). Destination will use the four letter code that the military uses for our destinations. Haz and Environmental codes will go into the Notes field. Adjust font size if so that all text is readable.
   c. Print out PID and close template. Do not save.
   d. Cut PID into two and place in plastic shipping sleeves.
   e. Attach PID to pallet on the rear and left sides. The rear PID should be about five feet up or as high as it can go and a little to the left so that a forklift driver can see PID without the forklift fence obstructing their view. The left side PID should be placed about five feet up or as high as it can go.
9. **Additional Information Resources**
   a. For Air Force Regulations Concerning a particular frame, refer to TO 1C-130A-9,TO 1C-17A-9 and TO 1C-5A-9. These are for the C-130, C-17, and C-5 respectively

DOCUMENTATION REQUIREMENTS (SUMMARY):

Documentation:

Contractor staff will update the Cargo Tracking System (CTS) with all pertinent cargo information. Staff will accurately fill out the pallet tracker, produce cargo manifests and pallet identification placards per the Air National Guard's request.

RESPONSIBILITIES:

- **Contractor Cargo staff:** Will follow procedures as outlined above.